

Review of: "Thermal Stress and Dengue Fever: Exploring the Correlation between Elevated Temperatures and Heat Waves in Disease Dynamics"

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Potential competing interests: No potential competing interests to declare.

The authors have delivered a good attempt at exploring the intricate connection between climate change and Dengue fever while focusing on the potential impact of high temperatures and heat waves. This topic is timely considering the changing climate and the rise in global Dengue transmission, especially in non-endemic regions.

However, a few sections of the manuscript may require modifications to clearly bring out the message for the benefit of the audience, as suggested below:

1. **Affiliations:** The authors have listed their respective institutional affiliations; however, please clarify if the affiliation listed #3 is the same as that listed #7.
2. **Introduction:** The manuscript may be enhanced by providing a clear definition of key terms used. For instance, the definition of heatwaves and how it differs from high-temperature events may be necessary.
3. Throughout the manuscript, adhere to the rules of writing scientific names.
4. **High Temperatures and Aedes Mosquito Vectors:** The current manuscript states, "Survival rates of Aedes mosquitoes are also impacted by temperature. Higher temperatures can reduce the lifespan of these vectors." The authors reiterate that while this may seem like a favourable outcome, it paradoxically increases the potential for Dengue transmission. The link between higher temperatures and enhanced lifecycle completion rate is well known. However, the possibilities for increased Dengue transmission due to shortened lifespans remain a matter of debate. The authors should consider expounding their arguments with supportive evidence and data.
5. **High Temperatures and Dengue Virus:** The authors state that "high temperatures can influence the survival of the Dengue virus outside of its mosquito host. The shortened survival time forces the virus to infect new hosts more rapidly." Dengue is an RNA virus which barely survives outside a living system. Please clarify how long the virus survives outside the mosquito host to enable it to mount rapid infection of new hosts? What transmission is considered in this argument?
6. The last paragraph in the section titled "High Temperatures and Dengue Virus" introduces a new concept on how high temperatures impact the transmission dynamics between humans. This statement may be moved to the section on Human Behaviour and Heatwaves.
7. **Human Behaviour and Heatwaves:** This section may benefit from additional information regarding the incidences or frequency of heatwaves, especially in Dengue endemic regions. What is the trend of heatwaves in the recent past, and

how has the Dengue prevalence changed over time?

8. The authors mention that there is a temptation to travel to cooler locations during heatwaves, thereby increasing the risk of introducing and spreading vector-borne diseases. Is there evidence to support this proposition for Dengue?
9. **Epidemiological Studies and Observations:** The study's results indicated that the risk of Dengue infection increased by 13% for each rise in 1 degree above the reference values. Please clarify if this figure is for a specific region or global.
10. **Public Health Implications:** The authors may consider numbering the sub-sections in this part of the manuscript to improve clarity and readability.
11. **General comment:** Methodology - The authors have not indicated how the review process was done. The audience may benefit from the methods performed in developing this review manuscript. Which data sources were used, and what are the limitations in the results?
12. What quality control measures were employed to mitigate the risk of biased reporting?